इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 14952 (2001): Textiles Auxiliaries - Thin Boiling Starch
[TXD 7: Textile Sizing and Finishing Materials]

“ज्ञान से एक नये भारत का निर्माण”
Satyanarayan Gangaram Pitroda
“Invent a New India Using Knowledge”

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”
Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

IS 14952 : 2001
(Reaffirmed 2006)

भारतीय मानक

वस्त्रादि सहायक — थिन बोईलिंग स्टार्च — विशिष्टि

Indian Standard

TEXTILES AUXILIARIES — THIN BOILING STARCH — SPECIFICATION

ICS 59.040

© BIS 2001

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

August 2001

Price Group 3

Textile Sizing and Finishing Materials and Dyestuffs Sectional Committee, TX 07

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Textile Sizing and Finishing Materials and Dyestuffs Sectional Committee had been approved by the Textile Division Council.

Thin boiling starch is now-a-days widely used as textile sizing and finishing agent, especially for finishing of dyed goods, to impart weight and firmness without giving 'starchy' feel to the fabric. It is also used as a thickener in printing. It is more advantageous as compared to conventional starches mainly because of its better solubility in cold water and uniform coating on textile materials even in high concentrations. It has lesser adhesive power and thus can be removed easily from the fabric during subsequent wet processing.

The composition of the committee responsible for formulating this standard is given at Annex E.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

TEXTILES AUXILIARIES — THIN BOILING STARCH — SPECIFICATION

1 SCOPE

This standard specifies the requirements of thin boiling starch made from maize starch for use in textile industry as a sizing and finishing material. It does not cover thin boiling starch made from tapioca starch.

2 REFERENCES

The Indian Standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 GRADES

3.1 Thin boiling starch shall be graded as either of the following four grades on the basis of alkaline fluidity:

Grade	*Alkaline Fluidity*
I	10 ± 2
II	20 ± 4
III	40 ± 5
IV	60 ± 5

NOTE — Alkaline fluidity is the quantity in ml of 5 percent alkaline solution passing through standard orifice in 70 s at 27 ± 2°C.

3.1.1 The Alkaline fluidity shall be determined by method given in Annex B.

4 REQUIREMENTS

4.1 Physical Requirements

Thin boiling starch shall meet physical requirements given in Table 1.

4.2 Chemical Requirements

The thin boiling starch shall also meet the chemical requirements given in Table 2.

5 PACKING

The thin boiling starch shall be packed in paper or polyethylene-lined jute or HDPE bags, each containing preferably not more than 50 kg of the material. Bags conforming to IS 7406 (Part 1), IS 7406 (Part 2), IS 8069, IS 8115 or IS 8117 or as laid in the contract shall be used.

Table 1 Physical Requirements of Thin Boiling Starch

(*Clause* 4.1)

Sl No.	Characteristic	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Colour	Off white to light cream powder free from foreign matter	Visual
ii)	Identification	To compare favourably with the photomicrograph given in Fig. 1 of IS 1184	Visual
iii)	Particle Size	To pass through 180 micron IS sieve	IS 4706 (Part 1)
iv)	Cold water solubles, percent on dry mass basis, *Max*	12.0	IS 4706 (Part 1)
v)	Viscosity of 5 percent (*m*/*m*) paste at 75°C, s (*see* Note)		Annex C
	Grade I	55 ± 3	
	Grade II	49 ± 3	
	Grade III	42 ± 3	
	Grade IV	36 ± 3	

NOTE — Either of the requirements of alkaline fluidity (*see* **3.1**) or viscosity [Table 1, Sl No. (v)] shall be applicable as per the agreement between the buyer and the seller. In case there is no agreement between the buyer and the seller, then requirement of viscosity shall not be applicable and only requirement of alkaline fluidity shall be applicable.

6 MARKING

6.1 Each package shall be legibly and indelibly marked with the following:

a) Name of the material;
b) Net mass (kg);
c) Indication of the source of manufacture; and
d) Month and year of manufacture.

Table 2 Chemical Requirements

(*Clause* 4.2)

Sl No.	Characteristic	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Moisture content, percent, *Max*	14.0	IS 4706 (Part 2)
ii)	Ash content, percent, *Max*	1.0	
iii)	*p*H of 10 percent aqueous slurry	5 to 7	
iv)	Starch content, percent, *Min*	98.0	
v)	Free acidity, ml, *Max*	40.0	
vi)	Petroleum-hydrocarbon solvent extractable matter, *Max*	0.25	Annex D

6.2 BIS Certification Marking

The product may also be marked with the Standard Mark.

6.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

7 SAMPLING

7.1 Lot

The quantity of same grade of material delivered to a buyer against one despatch note shall constitute the lot.

7.2 Unless specified otherwise, procedure given in IS 4662 shall be followed.

7.3 Starch content and particle size shall be tested on individual samples and the remaining characteristics on composite samples.

7.4 Criteria for Conformity

7.4.1 Lot shall be declared conforming if all the samples tested meet the requirements specified in this standard.

7.4.1.1 When the value specified is maximum, (mean + 0.5 × range) shall not exceed the specified value.

7.4.1.2 Where the value specified is minimum, (mean – 0.5 × range) shall not fall below the specified value.

ANNEX A

(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
1184 : 1977	Specification for maize starch, cotton textile, industry (*second revision*)
4662 : 1977	Methods for sampling of starches and starch products (*first revision*)
4706 (Part 1) : 1978	Methods of tests for edible starches and starch products : Part 1 Physical methods (*first revision*)
4706 (Part 2) : 1978	Methods of tests for edible starches and starch products : Part 2 Chemical methods (*first revision*)
7406 (Part 1) : 1984	Jute bags for packing fertilizers: Part 1 Laminated bags manufactured from 407 g/m^2; 85 × 39; tarpaulin fabric (*first revision*)
7406 (Part 2) : 1986	Jute bags for packing fertilizers: Part 2 Laminated bags manufactured from 380 g/m^2; 68 × 39; tarpaulin fabric (*first revision*)
8069 : 1989	High density polyethylene (HDPE) woven sacks for packing pesticides (*second revision*)
8115 : 1976	Double hessian jute bags for pesticides
8117 : 1976	D. W. Tarpaulin laminated jute bags for pesticides

ANNEX B

(*Clause* 3.1.1)

DETERMINATION OF ALKALINE FLUIDITY OF THIN BOILING STARCH

B-1 REAGENTS

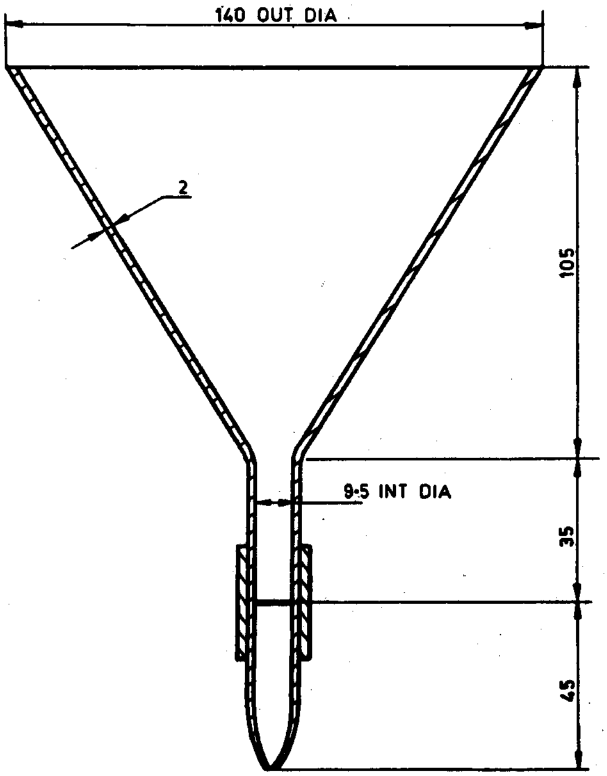
Sodium hydroxide solution, 1 percent (*m*/*v*).

B-2 APPARATUS

Glass funnel with dimensions as shown in Fig. 1 having tip standardized to deliver 100 ml of distilled water at 27 ± 2°C in 70 s.

B-3 PROCEDURE

Take 5.0 g of accurately weighed dry material in a beaker and wet it by adding 10 ml of distilled water. In above content, add 90 ml of 1 percent sodium hydroxide solution within 3 min at 27 ± 2°C with continuous stirring. Allow the mixture to stand for 27 min at the same temperature. Pour the contents into a special glass funnel. Measure the quantity, in ml, of alkaline thin boiling starch solution passing through the orifice of the funnel in 70 s at 27 ± 2°C. Above value represents the alkaline fluidity of thin boiling starch.



All dimensions in millimetres.

FIG. 1 BUEL FUNNEL

ANNEX C

[*Table* 1, *Sl No.* (v)]

DETERMINATION OF VISCOSITY OF THIN BOILING STARCH

C-1 Weigh 10.0 g of dry material. Add this to a beaker containing 200 ml water with continuous stirring. Mark the level of slurry in the beaker. Keep the beaker in a boiling water bath and cover with a plastic plate. Stir the mixture with a mechanical stirrer at a speed of 400 rev/min. After cooking for 20 min make-up the volume up to the mark with boiling water and determine the viscosity of the paste with Ostwald Viscometer No. 1 at 75°C. Express the results in seconds.

ANNEX D

[*Table* 2, *Sl No.* (vi)]

ESTIMATION OF PETROLEUM-HYDROCARBON SOLVENT EXTRACTABLE MATTER

D-1 PROCEDURE

Weigh accurately about 5 g of test sample in a thimble and mix with 5 g of purified coarse sand previously extracted with petroleum-hydrocarbon solvent (Boiling Point 60 to 80°C). Place a piece of absorbent cotton in top portion of the thimble to distribute the solvent as it drops on the sample. Transfer the thimble to the soxhlet extractor. Take adequate quantity of petroleum hydrocarbon solvent in a tared soxhlet extraction flask and assemble the soxhlet extraction apparatus. Heat on a water bath or electric hot plate at such a rate that the solvent will drop from the condenser on the centre of the thimble at a rate of atleast 150 drops/min. Keep the volume of solvent fairly constant by adding enough of petroleum-hydrocarbon solvent to make up for any loss due to evaporation. Continue extraction for 2 h. Remove the thimble from the apparatus after the extraction and distil the excess of solvent leaving about 25 ml of solution in flask. Transfer the solution to a tared 100 ml beaker. Evaporate the solvent in beaker on a steam bath followed by heating it in an oven maintained at 100 ± 5°C for 30 min. Dry the extract to a constant mass.

D-2 CALCULATION

Petroleum-hydrocarbon solvent extractable matter, percent by mass (on oven dry mass basis)

$$= \frac{10\,000\,a}{b(100 - M)}$$

where

a = mass of extract, in grams;

b = mass of sample taken, in grams; and

M = moisture content, percent by mass of the sample.

ANNEX E

(*Foreword*)

COMMITTEE COMPOSITION

Textile Sizing, Finishing Materials and Dyestuffs Sectional Committee, TX 07

Chairman	*Representing*
Dr M. M. Gharia	Ahmedabad Textile Industry's Research Association, Ahmedabad
Members	
Shri K. P. Janakiraman	The South India Textiles Research Association, Coimbatore
Shri N. C. Shah Shri A. H. Dhamelia (*Alternate*)	Maize Products, Ahmedabad
Shri V. Vijaykumar Shri D. L. Patel (*Alternate*)	Ahmedabad Textile Industry's Research Association, Ahmedabad
Shri A. V. Chiniwala Shri P. R. Deshpande (*Alternate*)	The Bombay Dyeing and Manufacturing Co Ltd, Mumbai
Shri A. J. Jassal Shri R. A. Lal (*Alternate*)	Office of the Textile Commissioner, Mumbai
Shri P. M. Bhatt Shri A. C. Rangani (*Alternate*)	The Millowners' Association, Mumbai
Shri K. B. Chokshi Shri Ajay Kachhi (*Alternate*)	The Anil Starch Products Limited, Ahmedabad
Shri S. R. Naik Shri M. G. Patel (*Alternate*)	Man-Made Textiles Research Association, (MANTRA), Surat
Shri G. S. Nadiger Shri S. Subramanian (*Alternate*)	Textiles Committee, Mumbai
Shri M. N. Naik	Das and Company, Mumbai
Dr J. J. Shroff Shri A. R. Patel (*Alternate*)	The Arvind Mills Ltd, Ahmedabad
Shri A. K. Prasad Shri C. M. Achwat (*Alternate*)	Clariant (India) Ltd, Mumbai
Shri Mahesh Sharma	Century Textiles and Industries Ltd, Mumbai
Shri R. Narayanan	Di-Ichi Karkaria Pvt Ltd, Mumbai
Shri D. A. Patil	Universal Starch Chem Allied Limited, Dhule
M. D. Dixit, Technology Advisor, Textiles and Engineering	In personal capacity *(2, Shri Siddhi Vinayak Coop. Housing Society, Swatantrya Veer Sawarkar Marg, Prabhadevi, Dadar, Mumbai-400028)*
Dr P. V. Varadarajan Shri A. J. Shaikh (*Alternate*)	Central Institute for Research on Cotton Technology, Mumbai
Dr G. V. G. Rao	Colour-Chem Limited, Mumbai
Shri P. C. Sharma Shri S. R. Iyer (*Alternate*)	Atic Industries Limited, Valsad
Dr S. R. Tendulkar Shri A. K. Pathak (*Alternate*)	National Peroxide Limited, Mumbai
Shri J. K. Joshi Shri V. R. Karmarkar (*Alternate*)	Indian Dyestuff Industries Limited, Mumbai

(*Continued on page 6*)

(Continued from page 5)

Members	*Representing*
Shrimati G. P. Rane Shri V. C. Panse (*Alternate*)	Wool Research Association, Thane
Shri N. S. K. Srinivasan Dr Sunil B. Joshi (*Alternate*)	The Atul Products Limited, Atul
Dr T. K. Guha Roy	Indian Jute Industries Research Association, Kolkata
Dr G. N. Sheth	The Bombay Textile Research Association, Mumbai
Dr S. A. Shah Shri K. S. Taraporewala (*Alternate*)	The Silk and Art Silk Mills Research Association, Mumbai
Shri R. K. Dua, Director (TX)	Director General, BIS (*Ex-officio Member*)

Member-Secretary

Shri M. S. Verma
Director (Tex), BIS

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act,* 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

This Indian Standard has been developed from Doc : No. TX 07 (0129).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002
Telephones : 323 01 31, 323 33 75, 323 94 02

Telegrams: Manaksanstha
(Common to all offices)

Regional Offices : Telephone

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg
NEW DELHI 110002
323 76 17
323 38 41

Eastern : 1/14 C. I. T. Scheme VII M, V. I. P. Road, Kankurgachi
CALCUTTA 700 054
337 84 99, 337 85 61
337 86 26, 337 91 20

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160 022
60 38 43
60 20 25

Southern : C. I. T. Campus, IV Cross Road, CHENNAI 600 113
235 02 16, 235 04 42
235 15 19, 235 23 15

Western : Manakalaya, E9 MIDC, Marol, Andheri (East)
MUMBAI 400 093
832 92 95, 832 78 58
832 78 91, 832 78 92

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE.
FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR.
LUCKNOW. NAGPUR. PATNA. PUNE. RAJKOT. THIRUVANANTHAPURAM.

Printed at New India Printing Press, Khurja, India